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AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS

1. (currently amended) A grid polarizer comprising:
a substrate; and

a plurality of stacked metal and dielectric or semiconductor layers, having a width w , disposed on the substrate and forming a parallel grid of stacked layers, the stacked layers spaced apart to form a repetition space between the stacked layers, Λ , such that no diffraction orders are allowed to propagate except the zero order resulting in a grid polarizer that is capable of transmitting substantially all illumination of a given polarization while suppressing at least a portion of the illumination reflected due to an orthogonal polarization component;

wherein the repetition space, Λ , satisfies the relation: $\Lambda < \frac{\lambda}{n_i - n_t \sin \theta}$, where λ represents

the operating wavelength of the polarizer, n_i represents the index of the incidence media, and n_t represents the index of the transmitting media;

wherein the stacked layers each comprise a first metal layer, a second dielectric or semiconductor layer, and a third metal layer, the thickness of the second dielectric or semiconductor layer being selected such that a transmission intensity, I_t , of the grid polarizer, as

represented by the following equation $I_t = \frac{(r+1-a)^2 - 4r(1-a)\sin^2 \frac{1}{2}\phi}{(r+1)^2 - 4r\sin^2 \frac{1}{2}\phi}$, is substantially zero,

where a represents absorption by the incident illumination upon interaction with the interface of first metal layer and the second dielectric or semiconductor layer and r represents reflection coefficient.

2. (currently amended) The polarizer of claim 1, ~~wherein the device~~ which is capable of transmitting substantially all of the illumination of a the given polarization while suppressing substantially all of the illumination reflected due to ~~an~~ the orthogonal polarization component.

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3. (cancelled)
4. (currently amended) The polarizer of claim ~~[[3]]~~ 1, wherein the first metal layer ~~comprises a metal and~~ is adjacent the substrate, the second dielectric or semiconductor layer ~~comprises a dielectric or semiconductor and~~ is adjacent the first metal layer, and the third metal layer ~~comprises a metal and~~ is adjacent the second dielectric or semiconductor layer.
5. (currently amended) The polarizer of claim ~~[[3]]~~ 1, wherein the first and third metal layers comprise either gold or alumina and the second dielectric or semiconductor layer comprises either Si or SiO₂.
6. (currently amended) The polarizer of claim ~~[[3]]~~ 1, wherein the thickness of the first layer is ~~thicker~~ greater than the penetration depth of a metal comprising the first layer such that the first layer reflects substantially all incident light polarized in a direction parallel to the orientation of the grid.
7. (original) The polarizer of claim 4, wherein the thickness of the third layer has a thickness operable to allow transmission into the second layer.
8. (original) The polarizer of claim 4 wherein the thickness of the third layer is less than or equal to 100 nm.
9. (original) The polarizer of claim 5, wherein the thickness of the first layer is at least 7 times greater than the thickness of the third layer.
10. (original) The polarizer of claim 5, wherein the thickness of the first layer is at least 10 times greater than the thickness of the third layer.
11. (cancelled)
12. (original) The polarizer of claim 1 wherein the repetition space, Λ , is dependent on the intended operating wavelength of the grid polarizer and ranges from 100 to about 1000 nm.

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13. (original) The polarizer of claim 7 wherein the operating wavelength is 1550 nm and the stacked layers exhibit a width ranging between about 100 to 300 nm.
14. (currently amended) The polarizer of claim ~~[[3]]~~ 1, wherein the operating wavelength is 1550 nm and the stacked layers exhibit a width ranging between about 100 to 300 nm.
15. (original) The polarizer of claim 13, wherein each of the stacked layers have a substantially equal width.
16. (original) The polarizer of claim 13, wherein each of the stacked layers has a varying width.
17. (currently amended) The polarizer of claim ~~[[3]]~~ 1, further comprising a homogenous film layer interposed between the stacked layers and the substrate.
18. (currently amended) The polarizer of claim ~~[[3]]~~ 1, wherein the substrate includes etched regions.
19. (currently amended) The ~~device~~ polarizer of claim 18, wherein the etched regions are disposed between the stacked layers.
20. (currently amended) The ~~device~~ polarizer of claim 18, wherein the depth of the etched regions is selected to increase the total transmission of light through the polarizer.
21. (cancelled)
22. (currently amended) ~~The device of claim 21,~~ A grid polarizer comprising:
a substrate; and
a plurality of stacked metal and dielectric or semiconductor layers, having a width w,
disposed on the substrate and forming a parallel grid of stacked layers, the stacked layers spaced
apart to form a repetition space between the stacked layers, Λ , such that no diffraction orders are
allowed to propagate except the zero order resulting in a grid polarizer that is capable of

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transmitting substantially all illumination of a given polarization while suppressing at least a portion of the illumination reflected due to an orthogonal polarization component;

wherein the repetition space, Λ , satisfies the relation: $\Lambda < \frac{\lambda}{n_i - n_t \sin \theta}$, where λ represents

the operating wavelength of the polarizer, n_i represents the index of the incidence media, and n_t represents the index of the transmitting media;

wherein the transmission intensity as represented by the following equation

$$I_r = |E_r|^2 = \frac{(r+1-a)^2 - 4r(1-a)\sin^2 \frac{1}{2}\varphi}{(r+1)^2 - 4r\sin^2 \frac{1}{2}\varphi} \text{ is equal to 0, wherein } E_r \text{ represents the total reflected}$$

field, a represents the absorption experienced by the incident illumination upon interaction with the interface of first metal layer and the dielectric layer and r represents the reflection coefficient.

23. (currently amended) A grid polarizer comprising:

a substrate; and

a plurality of stacked metal and semiconductor layers disposed on the substrate and forming a parallel grid of stacked layers, the grid of stacked layers having a repetition space between the stacked layers such that no diffraction orders are allowed to propagate except the zero order resulting in a grid polarizer that is capable of transmitting substantially all illumination of a given polarization while suppressing at least a portion of the illumination reflected due to an orthogonal polarization component;

wherein the repetition space, Λ , satisfies the relation: $\Lambda < \frac{\lambda}{n_i - n_t \sin \theta}$, where λ represents

the operating wavelength of the polarizer, n_i represents the index of the incidence media, and n_t represents the index of the transmitting media.